

WE CLAIM:

1. A salt-tolerant L-myo-inositol 1 phosphate synthase from *Porteresia coarctata* (PINO1) ,the nucleotide sequences and the deduced aminoacid sequence as given below (A)

A. Nucleotide and deduced aminoacid sequence of PINO1 :

```

atgttcctcgagagattccgcgtggagagcccgcacgtgoggtacggcgccggcgagatc
M F I E S F R V E S F H V R Y G A A E I
gagtcggagtagccggtacgacactacggagctggtgcacgagagccacgacggcgctcg
E S E Y R Y D T T E L V H E S H D G A S
cgctgggtcggtccgcccccaagtccgtccagtaccacttcaggaccagcaccaccgtcccc
R W V V R P K S V Q Y H F R T S T T V P
aagctcggggtcgtcgctggtgggtggggcgaacaacggctcaacgctgacggctggg
K L G V M L V G W G G N N G S T L T A G
gtcatcgccagcagggaggggaatctcatggggcgaccaaggacaaggtgcagcaagccaac
V I A S R E G I S W A T K D K V Q Q A N
tactatggctcactcaccagcgctccaccatcagggtaggaagctacaacggggaggag
Y Y G S L T Q A S T I R V G S Y N G E
atctacgcgcctttcaagagcctcctgcccattggtgaacctgatgacctgtgttcggg
I Y A P F K S L L P M V N P D D L V F G
ggctgggacattagcaacatgaacctggctgatgctatgaccagggccaaggtgctggac
G W D I S N M N L A D A M T R A K V L D
attgatctgcagaagcagcttaggccttacatggagtcctggtgcctctccctggcatct
I D L Q K Q L R P Y M E S W C L S L A S
atgatcccgacttcctgcgcgttaaccagggatcccgcggaacaatgtcatcaaggga
M I P T S S P L T R D P A R T M S S R E
ccaagaaggagcagatggggcagatcatcaaaggacatcaggagggttcaaggaaaataac
P R R S R W G R S S K D I R E F K E N
aaaattggacaaggcggtggtgttggtgactgcaaacactgaaaggtacaacaattgtctg
K M D K A V V L W T A N T E R Y N N C L
tgtttgggcttaatgaccaatgaaaaccttctgcgtctgtggacaggaaccaggcgagg
C L G L M T N G K P S A S V D R N Q A E
atatcgccatcgacattgtattgacattgccttgcttcattggagggtgtccgttcaata
I S P S T L Y C H C L A S L E G V R S I
acgggagcccttaaaaaaaaaatcttgccctggaattgacgatcttgccattaaaaaaaaa
T G A L K K K S W P G I D D L A I K K K
ctgcctgatccgggggggattaattcaaaaaaggggcaaaccaaaaaaaaaaacgggcttg
L P D P G G L I Q K R G K P K K X T G L
gttgatttcctcatgggtgctggaataaagcccacctaattgtcagttacaaccacttg
V D F L M G A G I K P T S I V S Y N H L
gggaataatgatggcacgaacctttctgcgcgcgaacattccgatccaaggagatctcc
G N N D G T N L S A P Q T F R S K E I S
aaaagcagcgtggtcgatgacatggtctcaagcaatgctatccctctacgagcctggcgag
K S S V V D D M V S S N A I L Y E P G E
catcctgatcatgttgctgtgattaagtatgtgccgtacgtcggagacagcaagagggcc
H P D H V V V I K Y V P Y V G D S K R A
atggatgagtacacctcagagatcttcatggggggtaagaacaccatcgtgctgcacaac
M D E Y T S E I F M G G K N T I V L H N
acctgcgagggaactgcctccttgcgtgcaaccaatcattcttgacctgggtgctcctggcgag
T C E D S L L A A P I I L D L V L L A E

```

```

ctcagcactaggattcagctgaaaggcgagggagaggagaaattccattccttccatcca
L S T R I Q L K G E G E E K F H S F H P
gtggctaccatcctgagctacctcaccaaggcgcccttgttcctcctggcacaccagtg
V A T I L S Y L T K A P L V P P G T P V
gtgaacgccttggcgaagcagagggctatgctcgagaacatcatgagggcctgcgttggg
V N A L A K Q R A M L E N I M R A C V G
ctggcccttgagaacaacatgatcctggagtacaag
L A P E N N M I L E Y K

```

2. DNA sequence coding as claimed in claim 1 wherein the nucleotide sequences of PINO1 comprises of two additional amino acids resulting in a protein bearing 512 amino acids in comparison with RINO1, the L-myo-inositol 1-phosphate synthase from cultivated rice.

3. A process of obtaining a salt-tolerant L-myo-inositol 1-phosphate synthase gene comprising:

- (i) Isolation of a full-length cDNA for the L-myo-inositol 1-phosphate synthase gene from the leaf of *Porteresia coarctata* by reverse transcription followed by polymerase chain reaction;
- (ii) sequencing of the isolated L-myo-inositol 1-phosphate synthase gene.

4. A process as claimed in claim 3, wherein the isolated full-length cDNA of PINO1 is cloned into a suitable bacterial expression vector pET 20B(+) to produce expression plasmids.

5. A process as claimed in claim 4, wherein the said plasmids were introduced into the host strain E.coli BL-21 (DE 3) for obtaining an expressed PINO1 gene product.

6. A process as claimed in claim 5, wherein the expressed PINO1 proteins are solubilized in a solubilization buffer containing 8M Urea, 0.5 M NaCl, 20 mM Tris-HCl, pH 7.5, 10 mM ME and 2 mM PMSF.